

Work Order ID 71548

Wednesday, July 06, 2011 11:32:48 AM



Page 1

Item ID: D350-591-122

Accept



Setup Start



Revision ID:

Item Name: Heli-Access-Step, RH

Stop



Start Date: 7/6/2011 Start Qty: 3.00



Cust Item ID:

Required Date: 7/20/2011 Req'd Qty: 3.00

Customer:

Reference:

Run Start



Approvals: Process Plan: CL Date: 11/07/06

Tooling:

Date:

QC: _____ Date: _____

SPC (Y/N): _____

Date: _____

Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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Draw Nbr

Revision Nbr

D2351

E

100

0.00



DOCUMENT CONTROL

DC

Memo

0.00

Document Control

Photocopy bluefile and type labels as per PPP D350-591-122 CHG005

S. Woslip

11-8-17

110

0.00



Large Fab

Large Fab

Memo

0.00

Large Fab

1-Cut D2244-116 extrusion to 55.32" long as per Dwg D2351 using cutting table setup DT8185-G
2-Drill extrusion per Dwg D2351 using Jig DT8230 for rivets.

11-07-07 x3

130

0.00



BENDING MACHINE - SKIDTUBES

CNC Bend 1

Memo

0.00

CNC Delta 100 Bender

Bend as per dwg D2351-042 using cnc bender and Folio FT 012. Use bend prog. D2351-042.

11-8-2

(3)

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
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Page 2

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QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start



Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
140 	QC5- Inspect part completeness to step on W/O	0.00							
QC Quality Control	Memo	0.00				<div>23 RH</div>			
150 	Large Fab	0.00							
Large Fab	Memo	0.00				3			
Large Fab	1-Bevel Fwd and Aft end for welding 2-Weld Aft End Bracket per QSI 004 & Dwg D2351 using Welding Jig DT8033 A/RAluminum Rod <i>M11734</i> 3-Do not Grind Flush				<i>11-08-10</i> <i>MAE</i>				
160 	QC9- Inspect visual per QSI004- Fusion Welds	0.00							
QC Quality Control	Memo	0.00				<i>3</i>	<i>0</i>	<i>BE 11/08/11</i>	

Dart Aerospace Ltd

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Page 3

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Run Start



Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
170 QC Quality Control	QC5- Inspect part completeness to step on W/O Memo	0.00 0.00		Sulos 111		(X3) RM			
180 HandFinish Hand Finishing	Chemical Conversion Coat per QSI005 4.1 Memo	0.00 0.00		11-08-11		(3)	Ø		
190 QC Quality Control	QC3- Inspect Part Finish Memo	0.00 0.00		SAD 11-08-13		(3)			

W/O:		WORK ORDER CHANGES					
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Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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Page 4

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Setup Start

Stop

[illegible][illegible]**Cust Item ID:**

Customer:

Run Start

Stop

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84

**Insp.
Stamp**

x3



He 11.08.13

0.00

0.00

 $\delta \ln \alpha_{\text{O}_2} / 15$

0.00

0.00

8 ulos/15

73
121

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

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Work Order ID 71548

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Page 5

Item ID: D350-591-122

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Stop



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Start Date: 7/6/2011 Start Qty: 3.00



Cust Item ID:

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Customer:

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Run Start



Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Stop



QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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250 Chemical Conversion Coat per QSI005 4.1 0.00



HandFinish

Memo

0.00

Hand Finishing

3x Ø M-11/08/15

260 White Gloss(Ref:4.3.5.1) per QSI005 4.3-Alum 0.00



Powdercoat

Memo

0.00

Powder Coating

START TIME

OVEN TEMPERATURE:

FINISH TIME:

M 118439

3:15
3:20
3:45

3x Ø M-11/08/15

270 Wing Walk as per dwg QSI005 4.4 Batch 0.00



HandFinish

Memo

0.00

Hand Finishing

M 118313

3x Ø M-11/08/16

W/O:		WORK ORDER CHANGES					
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Page 6

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Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

280 QC3- Inspect Part Finish

0.00



QC Memo

0.00

Quality Control

Swlos/12

x3
RH

290 Pick Kit

0.00



Packaging Memo

0.00

Packaging

11/8/17 SP 3x

300 QC4- 100% Inspect kits for completeness

0.00



QC Memo

0.00

Quality Control

Swlos/17

x3
RH

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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Page 7

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Run Start



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Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
310		0.00							
	Packaging					11/8/17		5/30	
Packaging	Memo	0.00							
Packaging	Identify and pack for shipping as per PPP D350-591-122 Location: <u>40</u> □ PPP Rev: <u>8 E</u>								
320	QC21- Final Inspection - Work Order Release	0.00							
QC	Memo	0.00							
Quality Control									

11-08-18
(3)

W/O:		WORK ORDER CHANGES					
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Picklist Print

Wednesday, July 06, 2011 11:32:46 AM

Page 1

Work Order ID: 71548

Parent Item: D350-591-122

Parent Item Name: Heli-Access-Step, RH



Start Date: 7/6/2011

Required Date: 7/20/2011

Start Qty: 3.00

Required Qty: 3.00

Comments: IPP Rev:E02.10.21 Re-format; Incorporated D2351-041 IPP KJ/RF

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
---------------------------------	------------------------	---------------	-------------	---------------------	------------------	-----------------	--------------------	----------------	-------------	--------------	---------------	----------------	--------

D2582

Manufactured

No

Each

0.0000

3



Step Leg Assembly

MS20600-AD4W3

Purchased

No

Each

895.0000

48



Cherry Rivets

Ac 11.08.12 B 72739 (X3)
Ac 11.08.12

Location

Loc Qty

Loc Code

ST321

762

111636

112

117505

496

117601

154

WA018

133

107939

133

X (48)

D2244-116

Manufactured

No

110

Each

123.0000

0.5

1.5



Step Extrusion

Ac 11.07.07.

Location

Loc Qty

Loc Code

HALL

93

60307

93

WA

30

60307

30

(1.5)

D2850-2

Manufactured

No

150

Each

2.0000

1



End Cap

Ac 11.08.10

Location

Loc Qty

Loc Code

ST016

2

47114

2

1
2

B 68489

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
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Parent Item: D350-591-122

Parent Item Name: Heli-Access-Step, RH

Start Date: 7/6/2011

Required Date: 7/20/2011

Start Qty: 3.00

Required Qty: 3.00

D2673-34

Manufactured No

220

Each

99.0000

1

3



End Plate



11.08.13

Location

Loc Qty

Loc Code

WA

76

69534

76

WA015

23

59690

23

3

AN3-37A

Purchased

No

290

Each

217.0000

2



Bolt



6

Location

Loc Qty

Loc Code

ST353

167

105425

31

-111668

136

ST354

50

117619

50

1

5

AN4-13A

Purchased

No

290

Each

872.0000

3

9



Bolt



11/18/350

Location

Loc Qty

Loc Code

ST357

872

117962

272

118078

600

12

11/18/077

AN960JD10

NAS1149D0363J

Purchased

No

290

Each

0.0000

4



Washer



AN960JD416

NAS1149D0463J

Purchased

No

290

Each

0.0000

6

18



Washer



11/18/384 11/18/145 30

W/O:		WORK ORDER CHANGES					
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Parent Item Name: Heli-Access-Step, RH

Start Date: 7/6/2011

Required Date: 7/20/2011

Start Qty: 3.00

Required Qty: 3.00

D2230-1

Manufactured No

290

Each

199.0000

1

Lug

Location

Loc Qty

Loc Code

ST470

1

54755

1

ST476

198

67826

6

69179

92

69821

100

D2230-3

Manufactured No

290

Each

202.0000

1

Lug

Location

Loc Qty

Loc Code

Return 2010

4

62927

2

63544

2

ST

120

70694

120

ST476

78

53881

4

69820

74

D2856-400

Manufactured No

290

f

111.5896

0.6

Abraison Strip

Location

Loc Qty

Loc Code

ST403

110.92

68076

110.92

ST409

0.6696

63735

0.6696

cut (1) at 7.20"

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

Wednesday, July 06, 2011 11:32:46 AM

Work Order ID: 71548

Parent Item: D350-591-122

Parent Item Name: Heli-Access-Step, RH

Start Date: 7/6/2011

Required Date: 7/20/2011

Start Qty: 3.00

Required Qty: 3.00

MS21042L3

Purchased

No

290

Each

1,875.000

2

6



Nut

Location

Loc Qty

Loc Code

ST300

1875

116549

201

117441

800

117601

400

117885

474

6

MS21042L4

Purchased

No

290

Each

4,568.000

3

9



Nut

Location

Loc Qty

Loc Code

ST300

4568

117441

2279

117601

789

117885

1500

9

D2732-030

Manufactured

No

290

Each

6.0000

2

6



Rubber Cushion

Location

Loc Qty

Loc Code

ST402

6

69205

6

9

cut (2) at 3.00"

AN4-16A

Purchased

No

290

Each

186.0000

2

6



Bolt

Location

Loc Qty

Loc Code

ST358

186

116400

2

117514

84

117872

100

6

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

DART

DESIGN KE	DRAWN BY PH	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED #H	APPROVED #H	DRAWING NO. D2351	REV. E SHEET 1 OF 2
DATE 05.11.14		TITLE HIGH FLOAT STEP ASSEMBLY	SCALE NTS
A	95.02.15	NEW ISSUE	
B	97.05.22	END CAPS CHANGED	
C	97.07.23	ADDED BUSHING AND FACING INFO	
D	98.12.17	CHANGED TO BEND, D2850 REPLACES D2357 & D2358, INCORP. DEO 9084	
E	05.11.14	UPDATE FINISHING NOTE	

D2351 HIGH FLOAT STEP ASSEMBLY PARTS LIST

Part No.	Description	QTY -041	QTY -042
D2351-041	High Float Step Assembly (LH)	X	
D2351-042	High Float Step Assembly (RH)		X
D2244-55.4	STEP EXTRUSION*	1	1
D2582	STEP LEG ASSEMBLY	1	1
D2673-34	STEP END PLATE	1	1
D2850-1	END BRACKET	1	
D2850-2	END BRACKET		1
MS20600AD4W3	RIVETS	16	16

*cut per drawing

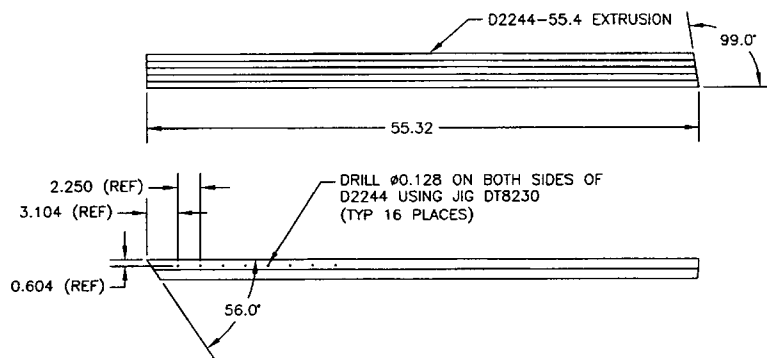
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WORK ORDER
NO. 71548

CZ11107106

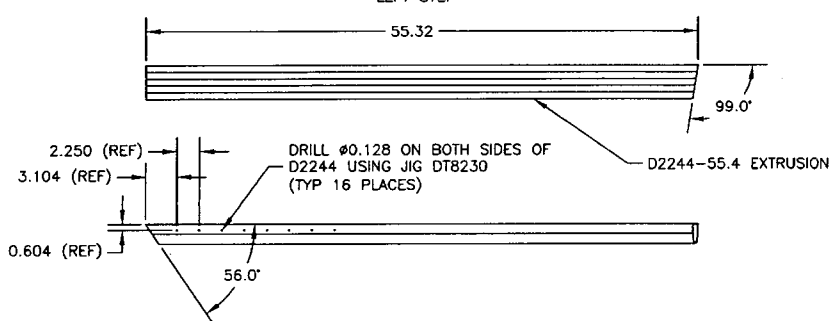
RELEASED
05.11.28 #HPH
ECN 1105**UNDER REVIEW**07.11.29 #H
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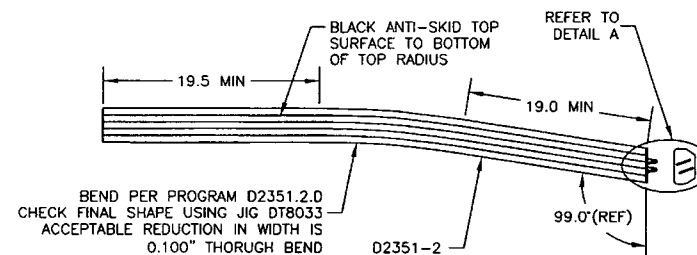
D2351-2 CUTTING/DRILLING DETAIL
RIGHT STEP



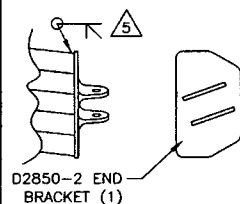
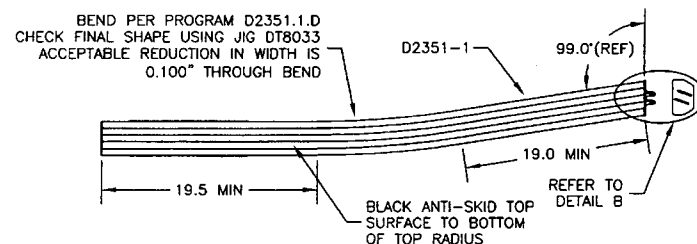
D2351-1 CUTTING/DRILLING DETAIL
LEFT STEP



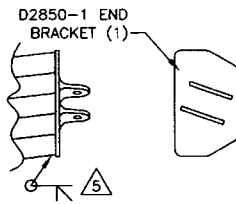
D2351-042 BENDING/ASSEMBLY DETAIL
RIGHT STEP



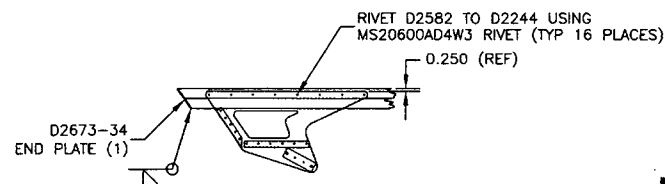
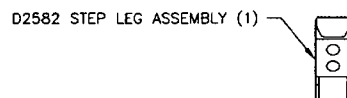
D2351-041 BENDING/ASSEMBLY DETAIL
LEFT STEP



DETAIL A
SCALE: 1:4



DETAIL B
SCALE: 1:4



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WITHOUT NOTICE
WORK ORDER
NO. 71598

GENERAL NOTES

- 1) WELD PER DART QSI 004
 - 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
POWDER COAT GLOSS WHITE (4.3.5.1) PER DART QSI 005 4.3
BLACK ANTI-SKID PAINT PER DART QSI 005 4.4
 - 3) ALL DIMENSIONS ARE IN INCHES
 - 4) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- CHAMFER D2244 EXTRUSION 0.075"x45" BEFORE WELDING D2850-1 OR D2850-2 IN PLACE. DO NOT GRIND FLUSH.

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DESIGN KE	DRAWN BY PH	DART	DART AEROSPACE LTD. HAMMERSLEY, ONTARIO, CANADA
CHECKED #	APPROVED #	DRAWING NO. D2351	REV. E SHEET 2 OF 2
DATE 05.11.14	TITLE HIGH FLOAT STEP ASSEMBLY	SCALE 1:12	

RELEASED
05.11.28

UNDER REVIEW

REV 105

REV 105

5. PARTS LIST

Qty -111A	Qty -113	Qty -115	Qty -117A	Qty -119	Qty -133	Part Number	Description
X						D350-591-111A	Heli-Access-Step ™, Long Step – High Skid
	X					D350-591-113	Heli-Access-Step ™, Short Step – High Skid
		X				D350-591-115	Heli-Access-Step ™, Short Step – Low Skid
			X			D350-591-117A	Heli-Access-Step ™, Pre-Flight Step
				X		D350-591-119	Heli-Access-Step ™, Long Step – Low Skid
					X	D350-591-133	Heli-Access-Step ™, Aft Maintenance Step
	1					D2310	STEP ASSEMBLY (HIGH-SHORT)
1						D2311	STEP ASSEMBLY (HIGH-LONG)
		1				D2354	STEP ASSEMBLY (LOW-SHORT)
				1		D2355	STEP ASSEMBLY (LOW-LONG)
					1	D2946-041	STEP ASSEMBLY (MAINTENANCE)
4	2	2	2	2		D2171	CLAMP
4	2	2	2	2		D2182B035	CUSHION
					4	D2230-1	MOUNTING LUG
					4	D2230-3	MOUNTING LUG
8	4	4	4	4		D2274	RADIUS BLOCK
			1			D2362-041	SUPPORT BRACKET
2	1			1		D2362-3	SUPPORT BRACKET
		1				D2362-5	SUPPORT BRACKET
2	1	1	1	1	2	D2856-400-720	ABRASION STRIP
					1	D2945	MOUNTING PLATE
2	2	2		2		AN3-37A	BOLT
					2	AN4-7A	BOLT
					4	AN4-11A	BOLT
					8	AN4-14A	BOLT
		4				AN4-16A	BOLT
8	4			4		AN4-20A	BOLT
1	1	1	4	1		AN4-22A	BOLT
4	4	4		4		AN960JD10	WASHER
10	6	2	4	6	14	AN960JD416	WASHER
		4				AN960JD416L	WASHER
2	2	2		2		MS21042L3	NUT
9	5	5	4	5	14	MS21042L4	NUT

Qty -121	Qty -122	Qty -123	Qty -124	Part Number	Description
X				D350-591-121	Heli-Access-Step ™, Short Step – High Skid, LH
	X			D350-591-122	Heli-Access-Step ™, Short Step – High Skid, RH
		X		D350-591-123	Heli-Access-Step ™, Short Step – Low Skid, LH
			X	D350-591-124	Heli-Access-Step ™, Short Step – Low Skid, RH
1				D2351-041	STEP ASSEMBLY (HIGH-SHORT, LH)
	1			D2351-042	STEP ASSEMBLY (HIGH-SHORT, RH)
		1		D2356-041	STEP ASSEMBLY (LOW-SHORT, LH)
			1	D2356-042	STEP ASSEMBLY (LOW-SHORT, RH)
1	1	1	1	D2230-1	MOUNTING LUG
1	1	1	1	D2230-3	MOUNTING LUG
1	1	1	1	D2856-400-720	ABRASION STRIP
2	2	2	2	AN3-37A	BOLT
3	3	3	3	AN4-13A	BOLT
4	4	4	4	AN960JD10	WASHER
6	6	6	6	AN960JD416	WASHER
2	2	2	2	MS21042L3	NUT
3	3	3	3	MS21042L4	NUT

REFERENCE ONLY

DART SERVICE INSTRUCTION

TO AMEND INSTALLATION INSTRUCTIONS D350-591 REV. G OR EARLIER
AND
INSTRUCTIONS OF CONTINUED AIRWORTHINESS ICA-D350-591 REV. 2 OR EARLIER

REF CANADIAN STC: SH92-6

REF FAA STC: SH967NE

For D350-591-121/-122/-123/-124/-133 steps, customers have the option of installing D2732-030 cushions under the D2230-1/-3 clamps to accommodate varying crosstube diameters and to improve fit. It is also acceptable to use longer or shorter AN4 bolts, and/or extra AN960JD416 washers under the nut to ensure 1.5 to 4 threads in safety. See Figure 1 on sheet 2 of this service instruction for reference.

For D350-591-121/-122 steps at CHG 005, D350-591-123/-124 steps at CHG 004, and D350-591-133 steps at CHG 003, the parts list of D350-591 Rev. G and ICA-D350-591 Rev. 2 is amended as follows:

ADD:

Qty -121	Qty -122	Qty -123	Qty -124	Qty -133	Part Number	Description
X					D350-591-121	<i>Heli-Access-Step</i> ™, Short Step – High Skid, LH
	X				D350-591-122	<i>Heli-Access-Step</i> ™, Short Step – High Skid, RH
		X			D350-591-123	<i>Heli-Access-Step</i> ™, Short Step – Low Skid, LH
			X		D350-591-124	<i>Heli-Access-Step</i> ™, Short Step – Low Skid, RH
				X	D350-591-133	<i>Heli-Access-Step</i> ™, Aft Maintenance Step
2	2	2	2	8	D2732-030	CUSHION
2	2	2	2	8	AN4-16A	BOLT







The DSI-9459-011 kit is available for customers with earlier model D350-591-121/-122/-123/-124 steps. Longer AN4 bolts are provided to fasten the clamps. The DSI-9459-013 kit is available for customers with earlier model D350-591-133 steps.

Qty -011	Qty -013	Part Number	Description
X		DSI-9459-011	Rubber Cushion Kit (for -121/-122/-123/-124 steps)
	X	DSI-9459-013	Rubber Cushion Kit (for -133 steps)
2	8	D2732-030	CUSHION
2	8	AN4-16A	BOLT

CANADA
DEPARTMENT OF TRANSPORT
AIRCRAFT CERTIFICATION
BRANCH
DAO # 01-O-01

APPROVED
BY: 
D. SHEPHERD (DE # 02)

DATE: 09.06.24
CERT. NO.: SH92-6
ISSUE NO.: 11

B	AN4-16A WAS -17A FOR -013/-133 KIT	CP	09.06.24
A	NEW ISSUE	CP	09.04.17
REV.	DESCRIPTION	BY	DATE
DESIGN		DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN			
CHECKED		DRAWING NO.	REV. B
MFG. APPR.		DSI 9459	SHEET 1 OF 2
APPROVED		TITLE	SCALE
DE APPR.		OPTIONAL CLAMP MODIFICATIONS	NTS
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